

## Big Aunty Is Watching You Bad Science Fiction Comes True



A number of new gadgets have made possible the detailed surveillance of populations in ways only dreamed of by the dictators of the past.

A British Kodak electronics engineer has invented a system that uses the *veins in the back of the hand* or wrist to replace signatures and other forms of certification for credit transactions.

Joe Rice invented the device after a co-worker stole his credit cards and went on a buying spree by forging his signature.

The British Technology Group, a technology transfer organisation, is developing a security system called *Veincheck* based on Mr Rice's invention. An electronic camera scans the subcutaneous veins and converts the pattern into digital information for storage in magnetic strips on credit cards or Smartcards.

A vein ID system has been marketed by Eyedentify, a US company, since 1984. The system uses low-intensity light to read the patterns of veins in a person's retina. The "Eyedentification" method is used mainly to control access to high-security buildings and monitor employees and prison inmates.

Mr Rice says a person could program everything they own to function only when activated by a Smartcard that recognises the owner's vein patterns.

The technology can also be easily adapted for use in retail outlets, but the system is at least two years away from the marketplace. Vein patterns are much coarser than fingerprints, and BTG scientists can only say that a person's vein pattern is "probably unique".

- New York Times

## ON GUARD

Fifteen South Australian prisoners are serving the last of their sentences in home detention - while wearing a wide, black 'electronic wristlet' which is secured by rivets around their wrists. Used widely in the US, the device is part of a computer-controlled system which telephones a prisoner's house at random intervals to check if they're home. The system, called On Guard, has been declined by some on the 'inside' because being at home but still in custody has been described as "mental torture".

When the phone rings, the detainee has 20 seconds to reach the phone, report their presence and verify it by placing their electronic shackle in a unit attached to the telephone. If there's no reply after three random calls, the SA Department of Correctional Services puts out a warrant for their arrest.

"It is designed to give our home detention system, which has a success rate of about 85%, more integrity," said Mr Frank Blevins, SA Minister of Correctional Services.

Sydney Morning Herald

## Genetic Fingerprinting

Australia's first criminal trial involving genetic 'fingerprinting' is due in the Tasmanian Supreme Court. Blood samples were taken from 20 suspects for genetic matching during investigations into the murder of a Hobart woman in 1987.

A man has been committed for trial over the murder, and key evidence is alleged to be

available in the form of genetic tests.

Australian courts have yet to decide whether genetic fingerprinting can be accepted as evidence. There are several techniques for matching key patterns in DNA present in blood, skin, semen, saliva and hair.

Legislation which requires that people give blood for matching purposes opens up a range of civil liberties questions. In South Australia, blood can be taken from a person who is in custody but not charged. In Western Australia a medical officer can be directed by a police officer to take blood. The WA Act allows "such force as is reasonably necessary for that purpose". In NSW, the Northern Territory and the ACT, a magistrate's order is required; in Victoria a person's consent must also be given.

SMH

## Animal ID

The RSPCA has endorsed a new animal ID system which involves inserting a microchip encoded with an ID number under the skin of an animal - probably in the ear - which can be read by bouncing an electronic impulse off it from a hand-held gun-like machine.

National RSPCA president Hugh Worth said the Society would lobby all State governments to make the system *compulsory* for dog, cat and horse owners within the next two years.

"This society is fed up with being a vacuum cleaner for literally millions of animals every year, especially when so often the animal is lost unnecessarily," he said.

The system has been commercially available for domestic use from several companies for a few months. It was first developed for use on cattle and sheep, and is seen as a stepping-stone to a nationwide cat identification register which could reduce the feral cat population.

The ID tags cost about 60 cents each and last 'for the lifetime of the animal'.

-SMH

## Smart Cars

Smart number plate technology will make it possible to measure the road use - and map the routes - of any road vehicle. By placing sensors along the roads and magnetic strips on a vehicle's number plate, all road use can be monitored - and taxed. Traffic lights can also automatically respond to the amount of traffic, speed can be easily monitored and all vehicle movements recorded.

## Files Taxed

The Taxation Office appears to be breaking the law by sending confidential tax file numbers to the wrong addresses.

In February, Opposition MP Mr Don Cameron claimed to have five tax file numbers given to him by constituents who received other people's numbers. Mr Cameron said there was nothing to stop people from using the numbers in part-time jobs, and pointed out it was illegal to tell anyone another person's number.

In two cases the Tax Office sent numbers to addresses which were 7 years out of date.

A NSW Privacy Commission report recently tabled in the NSW Parliament said that 1987's tightening of privacy legislation to cover computer records (including Tax File numbers) has not stopped the misuse of private records.

A jilted lover used records from the Department of Motor Transport to firebomb cars and anti-abortionists have used them to trace the addresses of doctors and patients attending clinics. DMT records have also been used by men to find the addresses of attractive women and people anxious to buy rare cars.

Bank, Corporate Affairs and credit bureau records have also been misused, according to the Commission.

## Pregnant Pas

Men will be able to become pregnant and carry children to a caesarian birth within two years, according to Sydney gynaecologist Dr Jules Black.

Dr Black, a Fellow of the Royal Australian College of Obstetricians and Gynaecologists, said the first male pregnancy "could occur any time now" and would happen "within the next two years".

If kept away from vital organs the foetus could grow safely for nine months before being surgically removed.

"There are always unscrupulous doctors who would not hesitate to perform such an operation if they had the knowledge," Dr. Black stated late last year.

"Neither is there any shortage of Australian men willing to be part of such a procedure.

"Transsexual couples are crying out to have children of their own and Sydney is the second biggest gay capital in the world."

While the procedure is only "theoretically possible", it has occurred accidentally in women many times in the past and hundreds of abdominal pregnancies have resulted in live births.

Human beings can be cloned now, top nuclear physicist Sir Mark Oliphant reported to a group of scientists at the University of Western Australia in January.

A scientific team in Cambridge, England, have already cloned animals and produced fertile crosses between totally different species, he said.

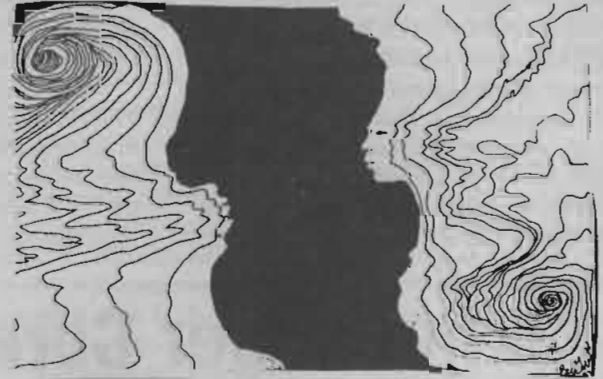
"They have produced a cross between a sheep and a goat using laboratory techniques and have achieved the cloning of animals which are identical, in whatever numbers required.

"What worried me most was the assurance that human beings could be cloned just as easily as cattle or tomatoes," Sir Mark reported.

Advancing technologies "are based on only partial knowledge of the infinite variety and inter-relationship of all life on Earth, and are driven by an insidious disease, monetarism, which has spread throughout the devel-

oped nations."

Embryos can gain nourishment through abdominal tissue and various parts of the body will function as a womb.



## Rainbow Power

Nimbin's Rainbow Power Company has developed what has been described as the world's most flexible water-powered generator. The cement-encased unit enables people to run electrical appliances and TV sets with the power from a garden hose.

"We are targeting remote areas in Australia and South East Asia where water is in abundant supply but electricity is not," said engineer Karl McLaughlin.

"Here it costs up to \$10,000 for farmers to have mains power put on but our units sell for only \$1,500," he said.

"It also allows people to be more self-sufficient and not to have to worry about electricity bills. But it's no good for city people because having water continually running is illegal."

## Fungus Transforms Pollutants

A fungus has been developed which decomposes a wide range of poisons by a team of scientists from La Trobe University in Melbourne. The fungus destroys dangerous chemicals including DDT, dioxin and lindane.

The head of the La Trobe team, Professor John Waid, said trials to test environmental safety of the procedures are underway in the US and it was hoped the method would gain approval there in the near future.

The process, involving a species of fungus which causes white rot in wood, can clean up polychlorinated biphenyls (PCBs) and organochlorines, some of the worst pollutants in the industrialised world.

# Taking Liberties

Anyone found with any amount of marihuana in South Wales now faces a maximum penalty of 10 years jail or a \$200,000 fine, under a new Supreme Court interpretation of NSW law.

In an appeal in late February, Justice Enderby ruled that a magistrate was correct in convicting a 24-year old man of *soliciting or inciting another to supply him with a prohibited drug*.

In addition to a possession charge - which carries a maximum penalty of two years jail or a \$2,000 fine (up to 25 grams) - anyone found with marihuana or any prohibited drug is now considered as responsible for a transaction as the person who sold it to them.

In a recent statement the Law Council of Australia said that the crackdown on organised crime has shifted the burden of proof to the accused and increased police powers in areas of privacy, search and seizure and use of listening devices. This case is a precedent which makes all smokers of marihuana - estimated by the Bureau of Statistics and others to be 31% of the population - vulnerable to selective (or random) victimisation.

There are half a million regular smokers in NSW.

After charging the 24 year old man, one of the arresting officers said, "I couldn't tell you what offence he had committed, but it was clear that something was going on."

In December last year the Law Council, representing Australia's barristers and solicitors, called for the legalisation of marihuana and a move away from law enforcement as a means of controlling drug use in general.

Head of the Law Council's criminal law section Mr Brian Donovan, QC, said increasing penalties for drug offences had failed - "and we have to face that fact."

The Council points out that the problems arising from alcohol and tobacco were worse than those caused by illegal drugs.

In a recent survey of the Hunter region in NSW, 99% of drug-related deaths were found to be caused by alcohol and tobacco.

A government poll in 1986 found that 77% of Australians surveyed were in favour of decriminalising marihuana. 31% had tried the drug and a further 16% said they would try it if it were offered to them. 10% were regular users.

SMH

## 'Skin Cancer Cure' Claim

A cream being marketed as a "safe and painless cure for skin cancer which produces no side-effects" has gone on sale over the counter in chemists. Developed from a plant used by Queensland farmers to stop the growth of cancers in cattle, the marketers of Curaderm say the cream will totally heal sunspots and several common forms of skin cancer.

Their claims follow clinical trials on 200 sunspots, squamous cell and basal cell carcinomas in which they cite a 100% success rate.



Dr Bill Cham, chief professional officer in the University of Queensland's department of medicine, spent 10 years developing the "secret ingredient" from the Devil's Apple plant, found on Australia's east coast. Dr Cham first learned of the plant from a veterinarian friend who learned it from an old farmer.

"I did some research and found the Devil's Apple contained a large quantity of glycoalcaloid and have had amazing success in clinical trials on skin cancers in humans."

Dr Cham said that after four weeks of treatment every skin cancer studied was completely healed while patients treated with a placebo cream for eight weeks showed no improvement.

Mr John Lumby, deputy chief pharmacist for the NSW Department of Health says the evidence is "not sufficient so far as we are concerned", and claims of cancer cure are forbidden.

## RADIOACTIVE JUMBOS

Amid all the news about commercial jets falling out of the sky recently, one detail slipped through almost unnoticed.

Pan Am Flight 103 - which crashed in Scotland on December 21st last year killing more than 260 people - exposed a disturbing fact; it contained 430kg of depleted uranium, used as a counterweight in five hundred and fifty Boeing 747s!

A Boeing spokesperson said that a health scare was unwarranted as the uranium would be harmful only if it oxidised in a four-hour fire and was released into the atmosphere.

Washington physicist Robert Parker disagreed, citing a letter he wrote to Boeing (which was published in *Nature* on December 22nd) in which he said that the uranium is "harmless when a plane is in normal operation, but should it crash and should there be a fire, called a pool fire, the uranium can be oxidised" and released into the atmosphere.

Boeing used the uranium as ballast until it found a cheap, reliable source of tungsten.

How many times have Jumbos crashed causing a 'pool fire'?



## Mammoth Boomerang

Polish archaeologists recently unearthed a 23,000 year old crescent-shaped boomerang in a cave near Krakow. Closely resembling its Australian counterpart, it is carved from a mammoth tusk and is older than any other known; the oldest Australian boomerang is only around 1,000 years old.

Reuter

## Koori Kids Deafened

Almost all Aboriginal children over 12 months old in the Northern Territory have defective hearing, according to a new health study.

Damaged eardrums and a middle-ear disease, which cause permanent hearing loss, are having a bad impact on their ability to learn and communicate, according to the Darwin-based Menzies School of Health Research study.

"The disease is so widespread and starts so early in life that Aborigines rarely recognise it is a problem, but it can have a serious impact on a child's early education," the N.T. Minister for Health, Don Dale, said in February.

This is only the latest in a series of reports documenting these and other health problems among Koori children. Yet researchers still do not know the cause of the middle-ear infection in Aboriginal communities and suspect it may be associated with chlamydia. The NT is appointing a doctor to the NT Department of Health and Community Services to co-ordinate ear health programs around the territory.

## Tree Eaters

Native eucalypts are threatened as never before throughout Australian grazing and farming lands. Die-back is spreading through vast areas and according to some scientists will occur on a disastrous scale over the next two years without widespread action by landowners, conservationists and governments.

Die-back is the defoliation and death of trees caused by a host of factors including leaf-eating beetles and moths, soil-borne fungi and damage by cattle and other animals. Thinned (logged) forest is susceptible to die-back, particularly where the land and ecosystem have been degraded by cattle.

This tree loss contributes to salinity and soil erosion, now widely recognised as the greatest danger facing the nation. Generations have allowed the soil to wash away and now desertification is spreading at an alarming rate, while productivity is dropping away with the last few inches of topsoil.

Late last year the NSW Legislative Assembly passed a Soil Conservation Bill which actually *increases* exemptions from the need to get a permit to destroy or damage trees on land protected for soil conservation.

"The passing of this legislation to allow exemptions could open the floodgates of tree-clearing in our agricultural lands at a time when there is so much concern about soil erosion and loss of native habitat," said Jeff Angel, Assistant Director of the Total Environment Centre (Sydney).

The Bill also abolishes the Soil Conservation Advisory Council, which was appointed by the previous government. (See *Permaculture - Renewing the Planet* (next page for Bill Mollison's view on these problems and their solutions).

## Ex Why Entropy?

The ability of parents to choose the sex of their offspring could lead to a total imbalance in the sexes - and deep social change.

105 boys are born for every 100 girls in North America and Europe today, according to a study by Dr Owen Lloyd and colleagues at the Department of Community Medicine at Ninewells Hospital in Dundee, Britain.

"In China, where the government is encouraging families with one child, the sex ratio is rising to over 115. That's perhaps because of infanticide of girls," the authors reported in December. Hong Kong has a ratio of 109, Greece 113 and Korea and Gambia 116.

"Recently, Asian women have been reported to abort female foetuses because of dowry problems. About 78,000 female foetuses were aborted in India between 1978 and 1982.

"Pre-selection for conception is becoming possible and gender choice has been produced by a pharmaceutical firm in America."

*The British Medical Journal*

## LUCK AT LUXOR

A cache of ancient statues has been found by chance amid the ruins of Luxor in Egypt.

Five life-sized black granite figures dating back at least 3,000 years were unearthed, in what has been claimed as possibly "the most important find since early this century," according to Egyptian Culture Minister Farouk Hosni.

"All are in perfect condition. They should complete the missing link in ancient history," he announced optimistically.

AP

## Hormonal Hibernation

Blood plasma has been removed from a black bear by a Canadian scientist and injected into a squirrel in summer to plunge it into a deep sleep.

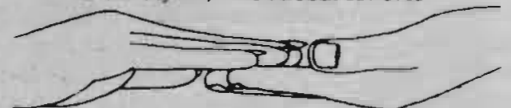
Naturalist Wayne Lynch of Calgary has been trying to find a chemical trigger which induces hibernation. Other scientists have used transfusions from hibernating animals to slow the heartbeat and lower the blood temperature of rats.

The experiments suggest that a hormone-like substance may be responsible for hibernation.

If the chemical/s responsible can be isolated, they may be used to put astronauts to sleep for long space voyages - and wake them again weeks or months later.

*AFP/Canadian Geographic*

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# Permaculture

Permaculture creates living systems using co-operation with nature and each other. It designs practical rural or urban environments using the diversity, stability and resilience of natural ecosystems, empowering people to be part of real solutions.

NEXUS interviews Permaculture pioneer Bill Mollison.

*Nexus: You've been working with permaculture for a long time now.*

*Bill Mollison: Yes, an unconscionably long time - about fourteen or fifteen years.*

*N: How would you describe the aims of Permaculture?*

*BM: Oh, they change all the time. We've achieved a lot of aims in that we've set up a good educational system and design; that was an early aim. One success is we've generated more teachers - although we're very short of teachers - who are teaching in their own languages in their own countries.*

The aims keep on changing and our current aim is to become *developers*, to purchase and develop properties or villages and to have the developmental capital for that. I guess we'll get there too - we seem to achieve our aims. That's the worst part of success - where do you go from there?

*"...we can build a village in the desert that provides itself with water"*

*N: So how does Permaculture development differ from normal development?*

*BM: We bring all the sustainable forms of development in - a village we'd develop would contain more than sufficient food and would catch all its own water from rainwater, in filtration tanks. If we were very lucky we could also have a supply from a stream. But if not we can build a village in the desert that can provide itself with water.*

Then the houses are largely self-energised by the design of the building for space, heating and cooling, either by use of a small amount of solar power in each house or by some other form of power. For instance, if we had a little stream we'd simply put in a small hydro system, so that the need for people to earn would be sharply reduced. The average family today spends 46% of its earnings on food and 19% on energy. We think we can cut down on individual expense by 70-80% - which frees up a lot of capital. In fact, in Brazil we found if we could provide houses

with gardens, people could own them in five years. But if we didn't, they would *never* own them because the interest kept beating them.

So the difference in having your food supply and therefore half your income available is great. The Permaculture village also has proper disposal of wastes plus its own banking system that is all recycled back, first to the village and second as priorities to other villages or groups. It would have its own education system, its own schools, child-minding centres - like the libraries and all the education training going on here in modern suburbia. And its own small market and commercial centres and light industrial area.

*N: What size population are you looking at?*

*BM: Well, for full employment within the village structure, at a thousand people or slightly larger everybody would be employed in the village. Maybe as many as 30% or 40% percent of people would work 'location-free' - people who write books or are in service to the outside as consultants, for instance. You could bike or walk to work and the amount of transport needed would be tiny and could be provided by a small delivery service plus a truck for trade and a little local taxi service.*



*N: How long would it take - from scratch - to get to self-sufficiency and surplus?*

*BM: Well, if you go on data from California - about three years after you start you're about 80% sufficient in food. After that it gets a bit embarrassing - there are a lot of*

## Renewing the Planet

signs along the footpath saying, "Please pick the fruit". So there are surpluses occurring over different seasons after the third year. So three to six years - after six years you're into heavy yields.

At one site I had almost a tonne of almonds off the trees this year. I've been going back there for six years, since the inception, and it's remarkable now how much food is coming out of the system. It's a medium-density town which provides all its own food. They still go out and buy things like fish and chips - but if they were cut off, they could supply anything.

The kids love it - there's just parkways and walkways - there's no through roads and it's very quiet and safe, and the capital gain on the housing has been enormous. A house there is now worth two to three times what it was worth six years ago and there's a waiting list for vacancies. So these developments that use very low energy expenditures and high self-reliance are very much in demand.

*N: People can see how it's relatively easy to achieve self-sufficiency in the country, but how would you do it in the suburbs?*

*BM: There are people who do it. The very first design that I ever did in 1975 was in the industrial suburb of Thornbury, Melbourne. There was a small group of people who slowly bought up a city block as it became available. They had houses touching each other along the back, so they took down a lot of the fences and they put in a wood workshop, metal workshop, pottery and children's house, which was an old garage. They closed off a couple of lanes and had chickens, ducks and all their fruit. They spent \$7 per person per month. So \$84 a year covered their food.*

## Regreening the City

Slowly, they went to work on the houses - adding little glass houses and cool houses to bring cold draught in the heat - and efficient heating systems. But that's by remaking poorly designed houses. It's been in continuous evolution since 1975. It's a nice little jungle.

*N: So you'd be looking at a city block size.*

*BM: Yes; well you can work on two blocks. If you have an association of friends who live in the city and all agree to move into a district as any house becomes available - sell where*

you are, buy there - you can do it.

They did another strange thing in Thornbury. They pooled all their money into a single bank account and they all carry a cheque book and see how little money they can write every month. I think the surplus is as high as \$8-9,000 dollars a month. It provides for everybody, plus that surplus. They support two of their number in service to an Aboriginal settlement and pay them a wage to stay there and pay the fees for anybody who wants to go to university to improve their education - people are able to take another two or three years training as adults.

They have a very large capital surplus and bought a little farm in Gippsland and a coastal patch of land down in Bass Strait on one of the islands, so they have a holiday place. Because of this big saving in food, energy and travel and also by pooling income, they achieve a surplus of capital while they work on a lot of projects.

*N: You've worked with Aboriginal communities yourself.*

*BM: My work with Aboriginal communities was chiefly through the Aboriginal section of T.A.F.E. in South Australia. S.A. has a lot of Aboriginal communities, from the Bight at Ceduna right up to Oodnadatta and there are four or five tribal groups.*

We've seen a lot of trees and a lot of food go in to each settlement we worked with. We set up a city farm and city training programs and at one stage we were putting 12 backyards a week into urban Aboriginal households. It made tremendous difference both to the monetary position of Aboriginal groups and to their health. Some of them have been able to give up their diabetic tools once they got onto fresh fruit and vegetables.

That's been a good time, we've always enjoyed the work, although at first it was very slow to take off. But after a few years everybody trusted us and we were welcome everywhere - we didn't have to rebuild that trust in each settlement.

*N: Has that been the case overseas where you've been working?*

*BM: In American Indian groups, yes. I started with the Paiute nation, and some Hopi came in - and I've worked since with the Papago or Sand People in the Sonora desert and with the Cherokee people on their reservations. We've had a lot of fun.*

*N: Are you mainly using plants that are native to land that you're working with?*

*BM: With the Papago we're working with plants that they actually developed. They developed beans and all your chiles and peppers and a lot of desert species - cat's claw and all sorts of special plants - so they're a great agricultural people. They still grow their traditional crops. The Paiute still plant*

their rice-grass out on the Dunes, that's their main grass. And they're experts.

Sometimes we bring in new crops, certainly. But sometimes we're working with people who are the originators of the crops. Sunflowers, Jerusalem artichokes, beans, peppers and chiles all originated in these peoples, particularly the Papago group.

***"They have a very ancient agriculture down there, five or six thousand years old, older than the earliest Egyptian records..."***

*N: So you've been learning a lot about cultivation from them directly?*

*BM: Yes, by their traditional methods and we've been looking a lot more closely at the archaeology of them who were the precursors of the Papago. I worked in Geronimo's country, with the Chiricahuas, but they're sadly all gone now, and the Chiricahuas are resettled now over in Florida. Geronimo resisted occupation and moved the whole of his tribe away from the ancestral grounds. But you can find traces of their agriculture in the Chiricahuas.*

*N: How do you get clear water in arid areas?*

*BM: Well, there are various methods. There are very sophisticated runoff systems to*

bring the flood water from the washes out into the fields and they're very ancient and very skilled in their construction. Then just before the fields, at the bottom of the waddies, or the sandbanks - or the arroyos, as we say there - they dig wells. Above the wells are actually water filled pans too, at flood time.

But in the really dry period, everyone traditionally leaves the desert and goes into the mountain foothills to the permanent springs. Then you hang out up in the foothills and collect your pine nuts and deer and all. And when the rains come back you go to your fields in the centre of the desert. That's the Sand Indians.

The same Pima group as the Papago live along the river and they have water all the time, so they water their beds

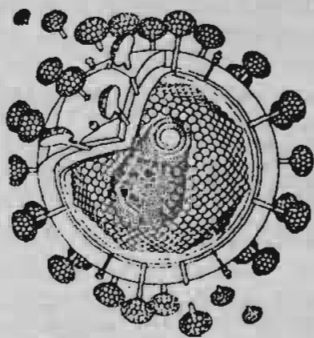
from the river. They have pretty intricate systems of floodwater-trapping with little fences and mounds, so the floods come up, flood the fields, leave the silt - almost like the old Egyptian culture. They have a very ancient agriculture down there, five or six thousand years old, older than the earliest Egyptian records.

It's amazing how far they took agriculture. You go up steep ravines into the hills and there'll be thousands of little stone-walled fields in which they grew agave - and a special agave only found in those fields, there are no wild ones like it. They trim it all off until it looks a bit like a short pineapple and then they pile tonnes of it into pits and cook it; hot stone pits.

There were thousands and thousands of people there with a pretty sophisticated agricultural base. Since white Americans overran most of that country the Indians are now penned into much smaller and poorer reservations and they can't leave the desert for the hill country.

**Continues Over**

# AIDS: The Real Story



As regular readers of ANY publication will know, a massive amount of information is printed about AIDS. NEXUS researchers have been sifting this mass for quite some time, and many anomalous features of the spread of AIDS came to our attention - so many that we were led to months of research in biomedical libraries to sort fact from fallacy and downright misinformation.

What we discovered has placed a whole new complexion on the nature of AIDS (Acquired Immuno-Deficiency Syndrome) and HIV (Human Immuno-deficiency Virus). We found so much, in fact, that it doesn't fit in NEXUS - so we've printed a NEXUS Supplement in our usual format to present the startling facts uncovered by other researchers and ourselves.

Called *AIDS - The Real Story*, it tells you all the facts - from the World Health Organization, Government Health departments and reputable scientific journals - which paint a very different picture of the spread of AIDS to that which we are normally shown.

Separated into easily-understood sections including *The Heterosexual Myth*, *The Virus Engineers* and *Aids in Africa*, fully referenced and rounded out with a clear Glossography, *AIDS - The Real Story* shows how media hype and scientific misinformation has helped cover up the probable source of AIDS and divert research from the most promising areas of exploration.

It also clearly illustrates why there's no need to panic, and how AIDS is *not* spreading heterosexually.

*AIDS - The Real Story* is a truly in-depth presentation of the facts behind AIDS, cancer research and presents an overview of what may yet be the tip of a biological iceberg.

If you have trouble finding copies in newsagents or health food stores, this supplement is available direct from NEXUS - see the back inside cover of this issue for details.

It's interesting working with each Indian group and they're very hospitable, put on little ceremonies for me and do sweat lodges, dust me down with eagle feathers and have little chants. They really have a lot of good times and tell a lot of stories - and jokes.

*N: Do these deserts still retain their original gene stocks because they've remained in the hands of native people?*

*BM: No.* The Sonora desert and all that area was a great prairie with huge herds of animals on it. In 1880 the first of the Texan herds reached the Sonora and they wiped off the prairie. By 1890 the first gulches and arroyos had cut into the grassland and it drained the waterable down so there's no more prairie. In those days there were huge trees in the river valley, two or three feet through, but now all the cattle and horses have to eat is mesquite. They went and took cattle up onto this dried-out landscape. So now you have a sand plain with shrub mesquite.

Originally it was a densely forested area with a lot of beaver, streams, huge cottonwoods - that was only in 1880. And cattle have reduced it to a cactus desert today. The cattle alone have done that.

*N: Do you think cattle have caused the same problems in Australia?*

*BM: Since their presence here - yes, most definitely - it's made our desert land very arid, and eventually it will become just a sand dune desert. You can see it happening with increasing rapidity.*

*N: How do you turn it around, aside from taking cattle and other hard-footed animals off the land?*

*BM: Ah, well how are you going to take the graziers out of Parliament? I mean, only 4% of our beef comes off the deserts. It's an insignificant amount of beef, but to get that small amount we're destroying thousands of square miles of landscape and it's an obvious immorality that its yields before cattle were enormous - and the yields now are ridiculously small.*

*N: If you remove the cattle, how do you go about regenerating the land?*

*BM: You make sausages from stones all wrapped up in wire - very heavy ones - and you build them in place across the valleys, so the sand builds up behind them up to the old level. You have to start putting swales across the country - contour drains about thirty feet wide - they catch runoff. And then you start replanting the swales and it's tedious and painful work but the results are pretty spectacular. You can bring back some of the old grasses at that point so you get a prairie and tree effect and you can start to plant cottonwoods behind the covered stone 'sausages'. But it's all hard work once you've gone downhill.*

I very much admire the Papago Indians. They're using all these techniques to return the land to some kind of health.

*N: You seem to continually be drawn to arid lands.*

*BM: I tend to be.* I told the people at Alice Springs, "Why send for me? I'm a Tasmanian - I don't know anything about the desert." But by observing I started to learn how to use the desert. Over a decade ago we started to learn how to direct and absorb water and studied the work of the Israelis. We've become good at deserts. We like deserts. We think they're great places to grow.

## Water Harvesting

The way to grow in deserts is by *water harvesting*. Say you're getting an average of 15 inches of rain per year, then half of that, 7 inches, falls only 13% of the rain days and the whole 15 inches over only 34 rain days. You only get 4 days of heavy rain and during those 4 days half the rain will fall. But if you can find a rock shelf, you can store water. Every hundred feet or so you store a shelf of water 20 feet wide with a bank about a foot high on the outside. All the hundred feet of runoff will fill that shelf - you can absorb 47 inches in it. And in that you can grow big orchard trees on contour strips, or swales, for miles.

You can grow trees which require forty inches of rain in a 15 inch rainfall area - and we can do that down to 4 inches of rain. It's quite productive with an average rainfall of 20 inches.

*N: Do the trees help hold the moisture as well?*

*BM: Yes.* After the swales age there's a noticeable leaf litter catch washing off the desert above into these little strips. Then slowly you'll see deep rich chocolate soils developing and you can sit in the swales picking up humus. Soil that smells like a compost heap.

Every bit of animal manure is washed across the desert and into the swale, every leaf, every stick. And the trees in the swale drop their leaves, so the soil becomes very rich very quickly. After a while the trees produce more rain because they transpire and by increasing the number of swales you could turn the desert back to humid forest in a relatively short time, as little as twenty years.

If we can hold back the graziers who want it all to be beef and lamb.

**R. Ayana**

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## Smart Bugs

Bacteria which survived in the frozen corpses of Arctic explorers for 140 years have been found to be resistant to modern antibiotics.

The bacteria were found lying dormant in the tissues of British seamen William Braine and John Hartnell, who died during a failed attempt to find a Northwest Passage in Canada in 1848. Their resistance to modern antibiotics - with which they have had no contact - calls into question the theory that resistance to antibiotics is caused only by 'random selection'.

Dr Kinga Kowalewska-Grochowska of Alberta University in Edmonton recently suggested that this resistance may be induced by the body's reaction to heavy metals (as the bodies of the explorers contained high levels of lead from lead-soldered food tins).

It's also possible that this is evidence for so-called morphogenetic field effects described by biologist Rupert Sheldrake, in which genetically-related forms seem to learn from their relative's experiences - a possible explanation for instinctual learning, 'selective' evolution and much more.

## Deliberate Evolution

New studies appear to sharply contradict accepted ideas about evolution and random genetic mutation.

Two research groups have independently found that some bacteria seem to be able to recognise environmental changes and choose or create specific mutations which will be of the most use to them, passing these traits on to later generations; the bacteria seem to be directing their own evolution.

"The evolutionary implications are very important because they will change our views of how mutations arise and how micro-organisms evolved into more complex creatures," said molecular biologist Barry Hall of the University of Connecticut, a member of one of the two research groups.

"It would be a great leap of belief to say that something like this could operate in more complex organisms," said Harvard School of Public Health Professor John Cairns, who published his report in *Nature* last year. But his own findings require a 'great leap of belief' for most biologists.

Prof. Cairns' group studied an intestinal bacteria called *Escherichia coli* (*E. coli*) that had been genetically altered so it couldn't use lactose as an energy source. Standard theory



indicates that if these bacteria are placed in a culture containing other sugars, a very small number will mutate during replication and re-learn the ability to digest lactose.

If they're placed in a growth medium containing only lactose they should remain alive without replicating - and with little chance to reacquire the ability by mutation - or so goes the theory.

But Prof Cairns noticed that his bacteria replicated rapidly in a lactose environment, showing that significant numbers of them had learned how to digest lactose - yet he noted that the overall mutation rate had *not* increased.

Two other experiments involving different types of mutations achieved the same results.

Mr Hall's research involved the study of two different mutations - one of which occurs infrequently in *E. coli* and another which occurs so rarely it's never observed in the laboratory. He had similar results.

"The mutations occur, or occur more frequently, only when they are of benefit to the cell," Mr Hall said - a surprising find that redolent of the theories of 18th century pioneer biologist Jean-Baptiste Lamarck, who argued that acquired traits could be passed on to progeny - and that the majority of mutations were favourable, not random.

Neither of the two studies show any evidence to indicate how the mutations are occurring.

Woollongong University biologist Dr Ted Steele argues that he was the first to recognise and publish a mechanism by which living things might evolve "deliberately", changing their genetic code during their lifetimes in response to environmental pressures. His ideas, first published in 1980, seemed heresy to neo-Darwinists and were largely ignored.

*Nature, Los Angeles Times*

## AIDS Myths Dispelled

After all the publicity governments and researchers have given to the need for heterosexuals to engage only in 'safe sex' to stop the spread of AIDS, much of the research which initially appeared to show that AIDS was spreading heterosexually (vaginally or orally) has now been refuted. This fact isn't yet widely known.

"I wouldn't be worried at all," eminent virologist Peter H. Duesberg (considered the micro-biologist who knows more about retro-viruses - the group to which the HIV organism belongs - than any other; see last issue) said earlier this year.

"The virus has been around for eight years in a country with more than 200 million people and not even 1,000 women have got the disease. Whatever's causing the disease, it's not easy to get. I might wear a condom to avoid other diseases but not for AIDS.

"Well, maybe if I wanted to have anal intercourse with a prostitute in Port-au-Prince..." he said.

Anastasia Lekatsas, ex-co-ordinator of investigations for the AIDS Surveillance Unit of the New York City Department of Health, followed up reports of heterosexual spread of AIDS for years. By careful investigation and questioning of patients, their friends and relatives she found that many patients had lied on the standard questionnaires (used to compile statistics on AIDS) - that many 'heterosexual' cases had, in fact, belonged to high-risk groups.

The proportion of New York City's 15,000 cases with no identified risk factors has remained at half a percent - just 85 cases, including only 8 men who claim to have caught the disease from a woman. Lekatsas believes almost all of these are lying, but unlike the scores of other cases she has confirmed to be non-heterosexual she can find no proof. For over two years there's been no increase in infection rate among US military recruits or blood donors. The rate of infection is dropping among gay men and may be leveling off among drug users.

AIDS is not a 'gay plague', nor in fact a plague at all. Virtually the only ways to get HIV/AIDS are by intravenous drug use (with infected needles) or anal sex, heterosexual or homosexual - and the receptive partner is at far more risk.

See also *AIDS - The Real Story* (order form on back page) and *Rolling Stone Feb. 1989*